

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Currently Amended) A method for executing a commit instruction
2 to facilitate transactional execution on a processor, comprising:
3 encountering the commit instruction during execution of a program,
4 wherein the commit instruction marks the end of a block of instructions to be
5 executed transactionally; and
6 upon encountering the commit instruction, successfully completing
7 transactional execution of the block of instructions preceding the commit
8 instruction, wherein successfully completing the transactional execution involves
9 atomically committing changes made during the transactional execution;
10 wherein changes made during the transactional execution are not
11 committed to the architectural state of the processor until the transactional
12 execution successfully completes.

1 2. (Currently Amended) The method of claim 1, wherein successfully
2 completing the transactional execution involves:
3 ~~atomically committing changes made during the transactional execution;~~
4 ~~and~~
5 resuming normal non-transactional execution.

1 3. (Original) The method of claim 2, wherein atomically committing
2 changes made during the transactional execution involves:

3 treating store-marked cache lines as locked, thereby causing other
4 processes to wait to access the store-marked cache lines;
5 clearing load marks from cache lines;
6 committing store buffer entries generated during transactional execution to
7 memory, wherein committing each store buffer entry involves unmarking, and
8 thereby unlocking, a corresponding store-marked cache line; and
9 committing register file changes made during transactional execution.

1 4. (Original) The method of claim 1, wherein if an interfering data
2 access from another process is encountered during the transactional execution and
3 prior to encountering the commit instruction, the method further comprises:
4 discarding changes made during the transactional execution; and
5 attempting to re-execute the block of instructions.

1 5. (Currently Amended) The method of claim 1, wherein for a
2 variation of the commit instruction, successfully completing the transactional
3 execution involves:
4 ~~atomically committing changes made during the transactional execution;~~
5 ~~and~~
6 commencing transactional execution of the block of instructions following
7 the commit instruction.

1 6. (Original) The method of claim 1, wherein potentially interfering
2 data accesses from other processes are allowed to proceed during the transactional
3 execution of the block of instructions.

1 7. (Original) The method of claim 1, wherein the block of instructions
2 to be executed transactionally comprises a critical section.

1 8. (Original) The method of claim 1, wherein the commit instruction
2 is a native machine code instruction of the processor.

1 9. (Original) The method of claim 1, wherein the commit instruction
2 is defined in a platform-independent programming language.

1 10. (Currently Amended) A computer system that supports a commit
2 instruction to facilitate transactional execution, wherein the commit instruction
3 marks the end of a block of instructions to be executed transactionally,
4 comprising:
5 a processor; and
6 an execution mechanism within the processor;
7 wherein upon encountering the commit instruction, the execution
8 mechanism is configured to successfully complete transactional execution of the
9 block of instructions preceding the commit instruction, wherein successfully
10 completing the transactional execution involves atomically committing changes
11 made during the transactional execution;
12 wherein changes made during the transactional execution are not
13 committed to the architectural state of the processor until the transactional
14 execution successfully completes.

1 11. (Currently Amended) The computer system of claim 10, wherein
2 while successfully completing transactional execution, the execution mechanism
3 is configured to:
4 ~~atomically commit changes made during the transactional execution; and~~
5 ~~to~~
6 resume normal non-transactional execution.

1 12. (Original) The computer system of claim 11, wherein while
2 atomically committing changes made during the transactional execution, the
3 execution mechanism is configured to:
4 treat store-marked cache lines as locked, thereby causing other processes
5 to wait to access the store-marked cache lines;
6 clear load marks from cache lines;
7 commit store buffer entries generated during transactional execution to
8 memory, wherein committing each store buffer entry involves unmarking, and
9 thereby unlocking, a corresponding store-marked cache line; and to
10 commit register file changes made during transactional execution.

1 13. (Original) The computer system of claim 10, wherein if an
2 interfering data access from another process is encountered during the
3 transactional execution and prior to encountering the commit instruction, the
4 execution mechanism is configured to:
5 discard changes made during the transactional execution; and to
6 attempt to re-execute the block of instructions.

1 14. (Currently Amended) The computer system of claim 10, wherein if
2 a variation of the commit instruction is encountered, the execution mechanism is
3 configured to:
4 ~~atomically commit changes made during the transactional execution; and~~
5 ~~to~~
6 commence transactional execution of the block of instructions following
7 the commit instruction.

1 15. (Original) The computer system of claim 10, wherein the computer
2 system is configured to allow potentially interfering data accesses from other
3 processes to proceed during the transactional execution of the block of
4 instructions.

1 16. (Original) The computer system of claim 10, wherein the block of
2 instructions to be executed transactionally comprises a critical section.

1 17. (Original) The computer system of claim 10, wherein the commit
2 instruction is a native machine code instruction of the processor.

1 18. (Original) The computer system of claim 10, wherein the commit
2 instruction is defined in a platform-independent programming language.

1 19. (Currently Amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for executing a commit instruction to facilitate transactional execution,
4 comprising:
5 encountering the commit instruction during execution of a program,
6 wherein the commit instruction marks the end of a block of instructions to be
7 executed transactionally; and
8 upon encountering the commit instruction, successfully completing
9 transactional execution of the block of instructions preceding the commit
10 instruction, wherein successfully completing the transactional execution involves
11 atomically committing changes made during the transactional execution;
12 wherein changes made during the transactional execution are not
13 committed to the architectural state of the processor until the transactional
14 execution successfully completes.

1 20. (Currently Amended) The computer-readable storage medium of
2 claim 19, wherein successfully completing transactional execution involves:
3 ~~atomically committing changes made during the transactional execution;~~
4 **and**
5 resuming normal non-transactional execution.